



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/NL81/00011 (22) International Filing Date: 14 April 1981 (14.04.81) (31) Priority Application Number: 8002187 (32) Priority Date: 15 April 1980 (15.04.80) (33) Priority Country: NL (71) Applicant (for all designated States except US): BREEDVELD BEHEER B.V. [NL/NL]; Mgr. Völkerstraat 97, NL-5171 JM Kaatsheuvel (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): PEETERS-WEEM, Petrus, Johannes, Maria [NL/NL]; Verdijkstraat 20, NL-4904 MC Oosterhout (NL). (74) Agent: HOORWEG, Petrus, Nicolaas; Octrooibureau Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK The Hague (NL).</p>		<p>(81) Designated States: CH, DE, DK, SE, US. Published With international search report</p>
<p>(54) Title: FOLDING WALL</p> <p>(57) Abstract</p> <p>A folding wall being composed of modules and substantially comprising a double row of panels (1) foldable in zig-zag fashion by means of hinges, wherein at least two panels being in opposite positions in the rows are pivotally interconnected by a coupling piece (4) having two relatively spaced supporting members (13), whilst two blades (11) of resilient material slidable between two supporting members (13), whilst two blades (11) of resilient material slidable between two supporting members (13), are each fastened to an inner side of a panel, said resilient blades (11) will cause an inwardly directed force upon the panels when the wall is drawn out, so moving these panels into a parallel position, and wherein a lever (15) is connected at a distance from the supporting members (13) by means of a hinge (16) with the coupling piece (4), so when folding the wall, said lever (15) is adapted to exert a pressure on the free ends of the resilient blades (11), causing an outwardly directed force upon the associated panels (1) so that the zigzag folding of the wall is facilitated.</p>		

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-1-

Folding wall

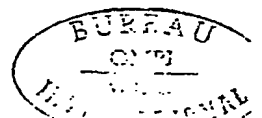
The invention relates to a folding wall mainly comprising a double row of panels foldable in zigzag fashion by means of hinges.

The invention has for its object to improve
5 the folding wall in a manner such that in the stretched state the panels lie in co-planar positions with the aid of simple means which, at the same time, facilitate folding of the wall. The invention has furthermore for its object to provide a folding wall which reduces transport and mounting costs by
10 its modular structure.

The folding wall according to the invention is distinguished in that at least two panels being in opposite positions in the rows are pivotally interconnected by a coupling piece having two relatively spaced supporting
15 members, whilst two blades of resilient material slidable between two supporting members are each fastened to an inner side of a panel.

Owing to the resilient blades the panels connected with said blades will be subjected to an inwardly
20 directed force when the wall is drawn out, so that these panels can be moved into parallel positions. By means of the pivotal connection with the further panels, the latter will follow said movement, and move to the same plane.

According to the invention opening of the
25 folding wall is facilitated because a lever is connected at a distance from the supporting members by means of a hinge with the coupling piece. By actuating said lever, which exerts pressure on the free ends of the resilient blades, an outwardly directed force is exerted on the associated panels



-2-

so that the zigzag folding of the wall is facilitated.

The proximal sides of the spring blades are preferably coated with a layer of rough material to avoid slip between the spring blades and to ensure uniform
5 flattening of the panels.

According to the invention the folding wall of the kind set forth in the preamble is furthermore characterized in that every four panels and two head strips are combined to form a hollow module, the head strips being
10 provided with means for fastening the strips to one another. Thus the mounting operation is drastically simplified, since every module is suspended to the guide rail required for the wall, after which only one operator need fasten the modules to one another. Since the modules are easily maniable,
15 transport is also simplified.

The coupling piece mentioned above is preferably formed by a head strip of a module.

In order to reduce the friction of the spring blades along the supporting members, the latter are formed by
20 rollers arranged, in the modular structure of the wall, in two opposite sides of an opening in the head strips.

A simple construction and an effective sound-proof assembly are obtained in that inter alia the panels and head strips are interconnected at the longitudinal
25 edges by uninterrupted hinge profiles of synthetic resin.

The invention will be described more fully with reference to an embodiment. The accompanying drawing shows in:

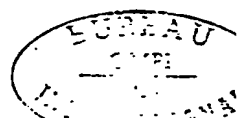
Fig. 1 a perspective view of part of the
30 folding wall in accordance with the invention,

Fig. 2 a plan view of a detail of the wall of Fig. 1,

Fig. 3 a horizontal sectional view of part of the folding wall in the stretched position,

35 Fig. 4 a vertical sectional view of the folding wall of Fig. 3,

Fig. 5 a perspective view of part of the folding wall illustrating the mounting operation.



-3-

The folding wall shown in the Figures is composed of modules each consisting of two opposite pairs of relatively pivotable panels 1, the hinge being formed by a synthetic-resin strip along the edges thereof (see, in particular, fig. 5). By other longitudinal edges the panels 1 are connected through a pivotal strip 3 with head strips 4 in a manner such that each module forms a hollow structure. Each module is suspended by a runner system fastened to the top side of each head strip 4 to a rail 5 along the top edge of a passage between two rooms.

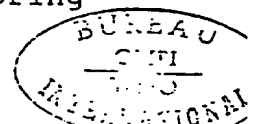
The modules can be fastened to one another with the aid of the head strips 4, for which purpose they are provided with fastening means. Fig. 5 shows that the head strips 4 have a square hole 6 for passing a tool 7 and a tapped hole 8 are alternately off-set in the head strips 4 so that when one module is mounted by means of the foremost head strip, the hindmost can be fastened to the foremost head strip of the adjacent module.

The head strips 4 have furthermore an opening 10, which openings are in register after mounting (see fig.2) Through these openings are passed two blade springs 11, one end 12 of which is fastened to the inner side of the adjacent panels 1. The spring blades 11 are provided on their proximal sides with a coating of rough material 13, which may have a ridge profile in order to avoid slip between the two spring blades 11.

At the level of the hole 10 the spring blades are supported by supporting members 13 in the form of rollers, the distance between the supporting members 13 being such that the spring blades 11 contact with one another at point A.

Near the end of the spring blades 11 is provided a cam 14, which prevents the spring blades from snapping from between the supporting members when the panels 1 are in the folded position.

At a given distance above the supporting members 13 a lever 15 is secured to the head strip 4 by means of a hinge 16. At the level of the free ends of the spring



-4-

blades 11 a pressing head 17 is fastened to the lever 15.

The folding wall according to the invention can be actuated as follows.

By drawing the folding wall of. fig. 1

5 forwards by means of the handle 18, the modules are moved into the stretched state, in which the panels 1 fold towards one another. Owing to this movement the spring blades 11 shift in place with respect to the pressure point 13 so that the spring blades 11 are deformed. The point A will then
10 shift as far as beyond the pressure points 13 in dependence on the shape of the spring blades 11 as a result of which in the semi-stretched state of the panels 1 an inwardly directed force is exerted at the junction point 12 in the direction of the arrow P 1 in the panel 1. This force brings about
15 stretching of the panels 1 in the direction of length of the wall.

When the wall is folded, the levers 15 will come into contact by their free lower ends with the inner side of the opposite head strip 4, the lever thus exerting
20 pressure by means of the pressing head 17 on the free end of the spring blades 11. This force in the direction of the arrow P 2 brings about an outwardly directed force P 3 at the junctions 12 so that the panels 1 are urged outwards. As soon as the pressure point A is located on the side of the
25 junctions 12 with respect to the pressing members 13, the spring force generated in the spring blades by the deformation will further the spread of the panels 1.

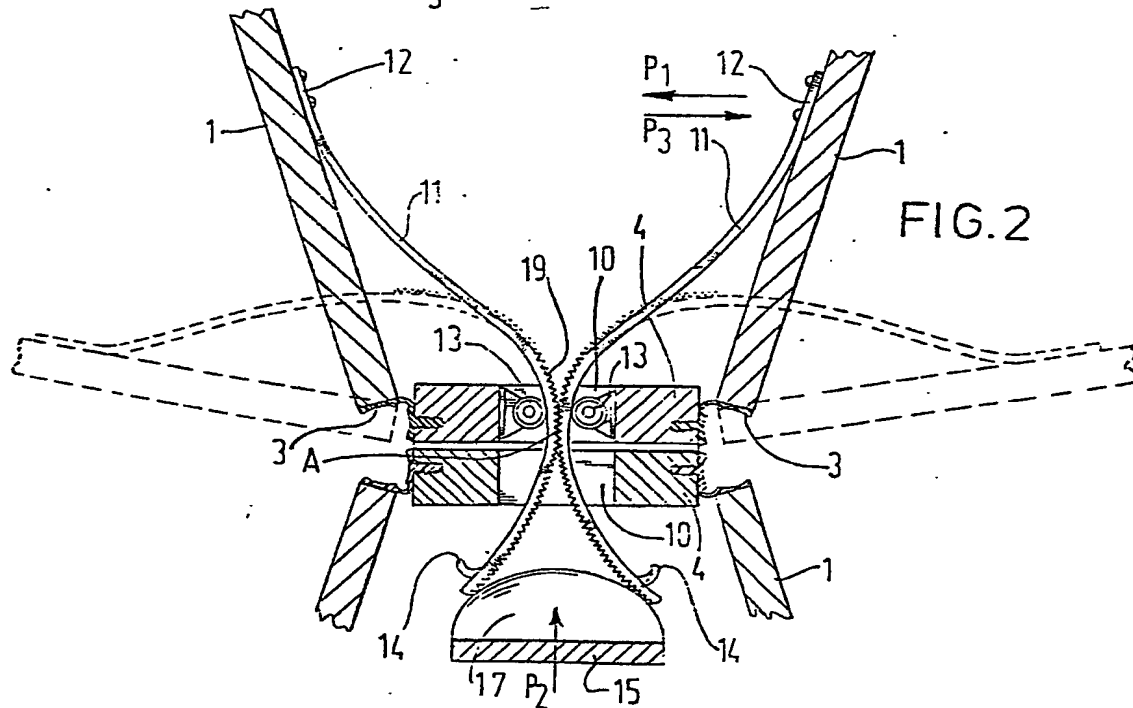
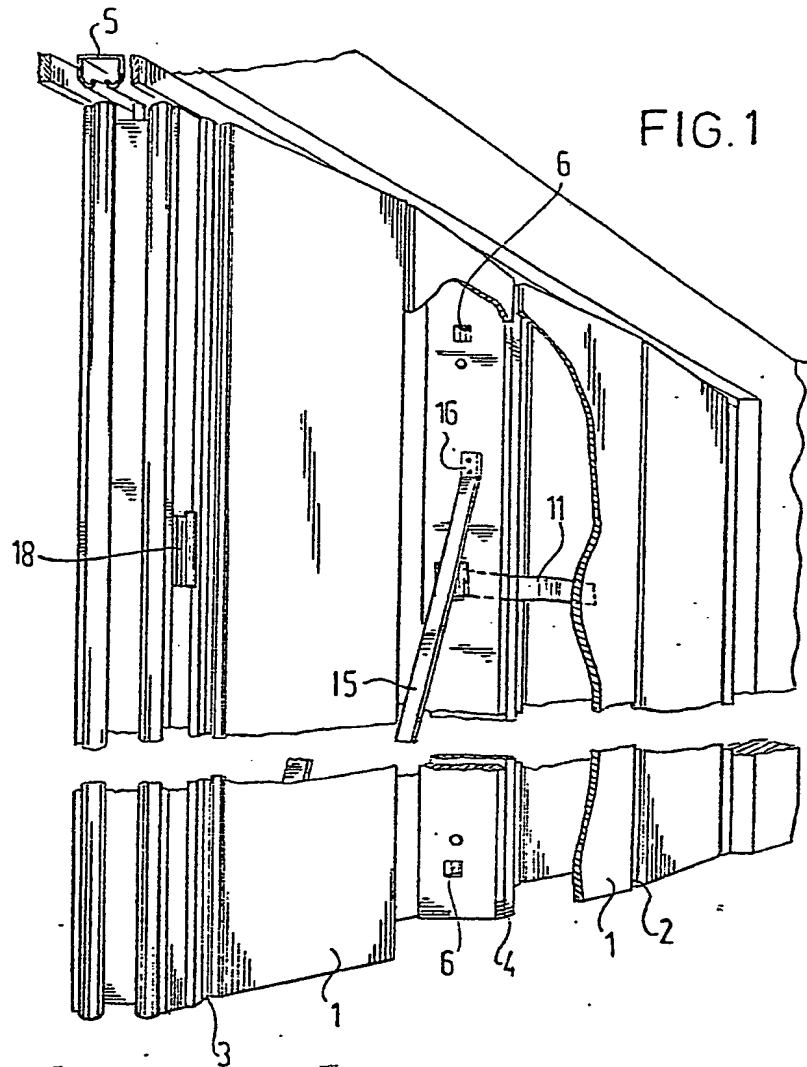
The invention is not limited to the embodiment described above. The flattening stretching design by means of
30 the resilient blades 11 may as well be used in another construction than that having the above-described module structure.

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WHAT IS CLAIMED IS:

1. A folding wall mainly comprising a double row of panels foldable in zigzag fashion by means of hinges characterized in that at least two panels in opposite positions in the rows are pivotally interconnected by a coupling piece having two relatively spaced supporting members, whilst two blades of resilient material being slidable between the supporting members are each fastened to the inner side of a panel.
2. A folding wall as claimed in claim 1 characterized in that by means of a hinge a lever is connected with the coupling piece at a distance from the supporting members.
3. A folding wall as claimed in claims 1 and 2 characterized in that the proximal sides of the spring blades are coated with a layer of rough material.
4. A folding wall mainly comprising a double row of panels to be folded in zigzag fashion by means of hinges characterized in that every set of four panels and two head strips are assembled to form a hollow module, the head strips being provided with means for fastening the head strips to one another.
5. A folding wall as claimed in claims 1 to 4 characterized in that the coupling piece is formed by each head strip of a module.
6. A folding wall as claimed in claims 1 to 5 characterized in that the supporting members are formed by rollers arranged on two opposite sides of an opening in the head strips.
7. A folding wall as claimed in claims 1 to 6 characterized in that the longitudinal edges of the panels and the head strips are interconnected by uninterrupted pivotal profiles of synthetic resin.





2-12

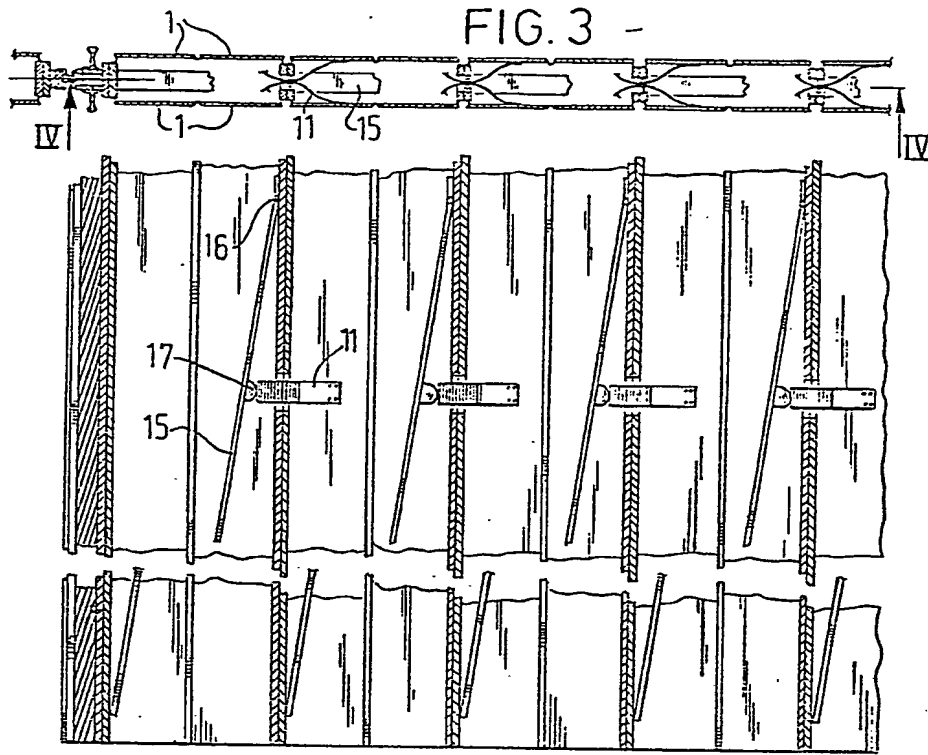
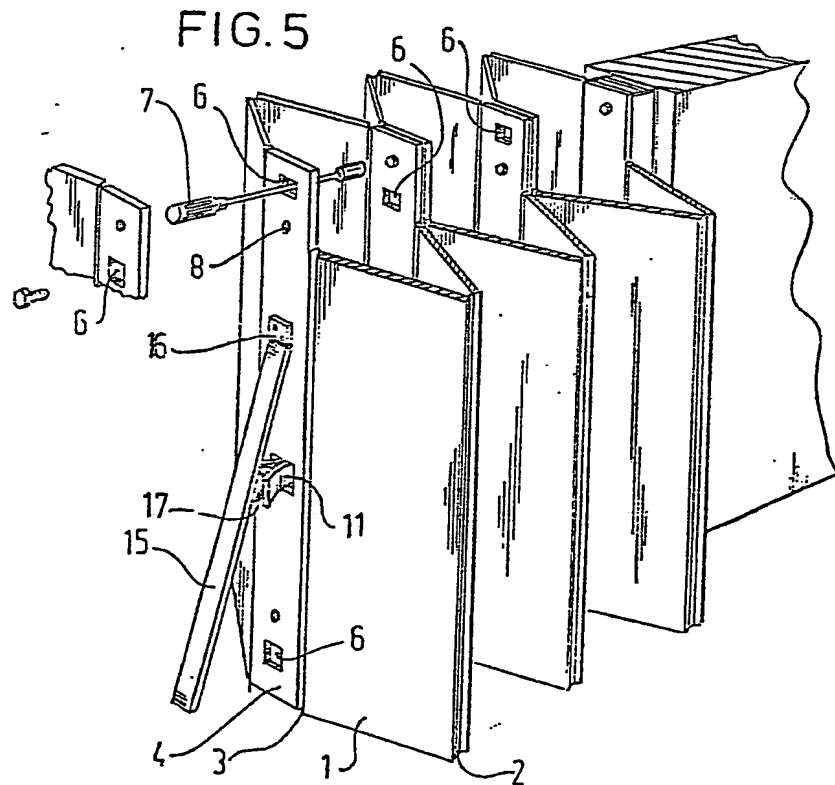


FIG. 4

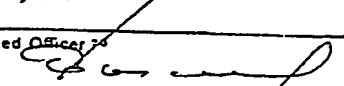


INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 81/00011

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ³		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. ³ : E 06 B 3/94		
II. FIELDS SEARCHED		
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III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
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	DE, B1, 2438985, published January 8, 1976, see column 4, lines 31-68, column 5, lines 1-36, column 6, lines 1-36, figures 1-5, Huppe	1, 2
	DE, A, 1683191, published January 21, 1971, see page 2, paragraph 4, page 3, paragraphs 1 and 2, page 5, paragraph 2, figure 2, Lignacord	4, 5
	FR, A, 2229844, published December 13, 1974, see page 3, lines 25-39, page 4, lines 1-10, figures 1-4, Panelfold Doors	7
A	US, A, 3029867, published April 17, 1962, see column 3, lines 13-51, column 5, lines 52-75, column 6, lines 1-34, figures 1 and 17-23, Maurer	1, 4
A	FR, A, 1099509, published September 6, 1955, see page 3, column 1, paragraphs 2-5, column 2, paragraphs 1-2, figures 8-11, Mischler	1

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IV. CERTIFICATION		
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